Fecal Occult Blood Tests

The fecal occult blood test (FOBT) is the least expensive and easiest colon cancer screening test recommended by national guidelines.[1-5] Large randomized clinical trials have also shown that FOBT reduces mortality from colon cancer.[6] However, the effectiveness of FOBTs is partially determined by how providers conduct the tests. Providers must select the brand of FOBT to use, including whether to use a guaiac-based test or an immunochemical test. Providers should conduct the FOBT through an at-home multiple specimen test rather than a single sample in-clinic test. In addition, when a patient has a positive FOBT, providers must order the appropriate follow-up test. While FOBTs are shown to reduce colorectal cancer incidence and mortality, the effectiveness of FOBTs depend on the choices providers make.[7-12]

FOBT Types

A committee representing the World Health Organization and the World Organization for Digestive Endoscopy reviewed the literature systematically for evidence of the performance of various FOBTs.[13] The review found that Hemoccult SENSA had the highest sensitivity for cancer and adenomas, but it also had a high rate of false positives (the test result was positive for people who did not have cancer). Hemoccult SENSA also had better readability than the prior Hemoccult II test. Immunochemical tests showed acceptable performance, and they were easy for patients to use (due to no dietary restrictions and easier stool capture), but they were expensive. There is also limited research on the effectiveness/efficacy of immunochemical tests. It was the committee's conclusion that no specific FOBT can be recommended as superior for all populations. They suggested that the choice of FOBT should consider patients' compliance with dietary restrictions required for FOBT and the community's colonoscopy resources. The committee recommended FOBTs as outlined in Table 1.

Table 1: FOBT recommendations by patient characteristics and environment

Patient characteristics	Environment	
	Adequate colonoscopy resources	Inadequate colonoscopy resources
Good compliance with drug and diet restrictions	A sensitive guaiac test (e.g., Hemoccult SENSA)	High specificity guaiac test (e.g., Hemoccult)
Poor compliance with drug and diet restrictions	Immunochemical test	Immunochemical test or two-tier approach*

*The two-tier approach has the patient simultaneously collect samples for both guaiac and immunochemical tests, without dietary restriction. If the guaiac test is positive, then the immunochemical test is developed to check the results. However, the committee was hesitant to recommend this approach as the tests were not created with this use in mind.

Ko et al. conducted a cohort study to examine patient compliance and test characteristics of guaiac-based and immunochemical FOBTs.[14] The study found that the two FOBT test types were associated with similar patient compliance, positivity rates, and follow-up evaluation results. A recent review cites other studies as showing improved compliance with immunochemical FOBT.[6] Large studies of the immunochemical FOBT are currently being conducted in the U.S. and Australia. [6]

FOBT Test Location: Physician's Office or Patient's Home

FOBT samples can be collected by the physician during an office visit with a digital rectal examination, or by the patient at home using multiple stool samples. Collins et al. investigated the effectiveness of a single sample in-office FOBT in comparison to an at-home guaiac FOBT.[15] They found that only 4.9% of patients found to have cancer or large polyps through a colonoscopy had positive results from the single sample in-clinic FOBT. Twenty-four percent of the patients found to have cancer or large polyps tested positive through the at-home guaiac FOBT. The authors concluded that single sample in-clinic FOBTs are an ineffective means to screen for colon cancer, and that providers should offer patients at-home FOBT.

However, despite national guidelines recommending at-home FOBTs, a study by Nadel, et al. found that one-third of surveyed providers who used FOBTs reported using single sample in-clinic FOBTs only.[16] Among the patients surveyed who had had an FOBT, approximately one-third stated they had a single sample in-clinic FOBT only.[16]

Follow-up for Positive FOBT

Completion of an FOBT is only one part of proper screening for colon cancer. Positive FOBTs should be followed by an appropriate clinical diagnostic evaluation through colonoscopy.[2] Nadel et al. found that approximately one-third of providers repeated the FOBT if a patient had a positive result instead of referring the patient for colonoscopy.[16]

Baig et al. found that 46% of providers in their study did not do a clinical diagnostic follow-up on a positive FOBT.[17] They investigated the reasons the providers did not follow-up a positive FOBT with colonoscopy. Fifty-one percent of providers reported that follow-up did not occur based on their decision. Providers reported several major reasons for their decision including the patient had received another test (repeat FOBT; sigmoidoscopy; or upper GI x-ray); they attributed the positive result to another health condition; or the patient was on other medication or would not comply with diet restrictions. Twenty-eight percent of providers reported the specialist decided not to pursue colonoscopy. Seventeen percent reported that patients refused or did not present for colonoscopy. Finally, five percent reported the practice had no record of the positive result. These findings indicate that many patients do not receive proper follow-up for positive FOBT, which significantly limits the effectiveness of FOBT as a colon cancer screening method.

Conclusion

FOBTs provide an excellent, inexpensive method by which to reduce colon cancer mortality. However, with many FOBTs from which to choose, providers should consider their patient population and access to colonoscopy before selecting their FOBT of choice. In addition, we must work to increase rates of providers using at-home FOBTs instead of single sample in-office FOBTs; and to increase rates of providers appropriately following positive FOBTs with colonoscopy.

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Prepared by:

Brooke Ike & Peggy Hannon, PhD, MPH
Alliance for Reducing Cancer, Northwest
University of Washington Health Promotion Research Center
June 2005